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TAGS: ECON ENRG SENV PGOV KGHG CI
SUBJECT: CHILE HOSTS INTERNATIONAL ICE AND CLIMATE CONFERENCE; SHRINKING GLACIERS REQUIRE A NATIONAL MONITORING STRATEGY

REF: 08 SANTIAGO 1096

¶1. Summary: Chile hosted hundreds of experts from over 22 countries at a three-day international glaciology and climate conference, 1-3 February 2010. Chilean President Michelle Bachelet inaugurated the event with a speech commemorating the country's achievements in glaciology studies, the scientific underpinnings of climate change, and expressing support for an internationally-binding agreement on climate change. The conference featured new research results and stimulated discussion of on-going cryospheric and climatic changes in the Southern Hemisphere. A prominent Chilean glaciologist presented a conceptual roadmap for a tiered approach to prioritize monitoring of Chile's glaciers as the country continues to develop its national glacier policy. U.S. universities and research institutions were well-represented at the event and the Embassy sponsored an expert speaker from NASA. The conference received broad media coverage. End Summary.

Background: Chile's Climate Change Strategy and National Glacier Policy

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¶2. For the past several years, Chile has focused more of its policy efforts on climate change. The country's latest five year National Climate Change Strategy for 2008-2013 (reftel) identifies -- under the section "Adapting to the Effects of Climate Change" -- hydro resources, food production, urban and coastal infrastructure, and energy supply as most susceptible to climate change and, among other near-term goals, recommended constructing a glacier inventory, installing a monitoring network, and generating a glacier management strategy. Chile's National Water Authority (Direccion General de Aguas or "DGA") has the authority to implement this plan. In addition, in April 2009, Chile's National Environmental Commission (CONAMA) approved the National Glacier Policy, an agreement between the government, the National Mining Society, and the Mining Council, which represents 17 of the nation's largest mining companies. The policy requires environmental impact studies when projects are undertaken on or near glaciers.

Ice and Climate Change: A View from the South

¶3. Chile's Center of Scientific Studies (Centro de Estudios

Cientificos - CECS), in conjunction with Fundacion Imagen de Chile, hosted the "Ice and Climate Change: A View from the South" (VICC 2010) glaciology conference in Valdivia, Chile, 1-3 February 2010 (www.cecs.cl/vicc). Co-sponsors included the Climate and Cryosphere (CliC) Project of the World Climate Research Program-Scientific Committee on Antarctic Research (WCRP-SCAR); the International Association of Cryospheric Sciences (IACS); the International Glaciology Society (IGS); the Center for Advanced Studies in Arid Zones (CEAZA); the Center of Innovation in Engineering (CIN); the National Commission for Scientific Investigation and Technology (CONICYT); Chile's Millennium Science Initiative (ICM); and the Embassy.

¶4. The conference, which attracted hundreds of experts, academics, consultants, and students from over 22 countries, featured new research results and stimulated discussion of on-going cryospheric (defined as the frozen part of the Earth's surface, including the polar ice caps, continental ice sheets, glaciers, sea ice, and permafrost) and climatic changes in the Southern Hemisphere. The broad-ranging topics included:

-- Changes to glaciers, ice sheets and shelves, permafrost, sea ice, snow cover and freshwater ice, from both climatic changes and human activities;

-- Climate of the Southern Hemisphere: variability vs. trends;

-- Remote sensing and geophysical techniques for cryospheric studies;

-- Modeling of cryospheric processes and data assimilation; and,

-- Societal and economic impacts, risk management, adaptation, mitigation, and public policies.

Glaciers are Strategically Important for Chile and the World

¶5. Opening her inaugural remarks by joking that she wanted to give everyone a "warm" welcome, President Michelle Bachelet pointed out that, over the past decade Chile had become a major player in the field of glaciology, which she described as "strategically important for [the country's] future. Touting VICC 2010 as the first major post-Copenhagen glaciology conference, she praised the "untiring work of scientists that underpins policy-makers' decisions." Bachelet's remarks were carried live on national radio.

¶6. President Bachelet expressed concern that around 90 percent of Chile's 3,000-plus glaciers -- over 80 percent of the ice in South America -- are showing signs of shrinkage. She cited the 4th report of the Intergovernmental Panel on Climate Change (IPCC), which estimated western Antarctic glaciers and ice sheets will contribute around 80 cm to sea level rise over the next century. Bachelet noted this was the rationale for supporting multinational,

flexible approaches to tackling global warming. Adding a plug for technology transfers and financing, she expressed Chile's support for an internationally-binding agreement on climate change as soon as possible.

¶7. Touting Chile's new environmental institutions, including its new ministry of environment, the Council of Ministers for sustainable development, and the pending creation of an environmental court, President Bachelet emphasized the importance of glaciers, strategic fresh water reserves, and hydrology. She outlined the efforts of DGA, which has been tasked with creating a national glacier inventory. Finally, displaying her well-known personal touch, she mentioned glaciologist Jens Wendt, who died in a plane crash in April 2009, becoming the first CECS researcher to fall in the line of duty.

U.S. Experts on Ice: Satellites, Radar and Remote Sensing

¶8. There were a number of U.S. experts representing an array of American universities and research institutions at the conference. Many of them focused on the Antarctic ice sheets, e.g., Steven Arcone from the U.S. Army Cold Regions Research and Engineering Laboratory (CRREL) presented on radar profiles; Konrad Steffen from the Cooperative Institute for Research in Environmental Sciences (CIRES) at University of Colorado-Boulder discussed the Climatology of the Larsen C ice shelf on the Antarctic Peninsula; and

University of Washington researcher Bernard Hallet used the surface characteristics of glaciers and fjord sediments to model glacial erosion rates.

¶9. In addition, Post's public affairs section sponsored Dr. Jay Zwally from the NASA Goddard Space Flight Center in Greenbelt, MD. Zwally explained that, based on his analysis of the mass balance of the Antarctic ice sheet using ICESat laser altimetry from 2003-2008, he concluded the overall rate of mass loss from Antarctic grounded ice had not changed significantly since the 1990s. [Note: This conclusion contrasts with the findings of many other researchers studying other sections of the Antarctic. End note.] Zwally commented positively in Chile's leading daily (El Mercurio) on President Obama's decision to increase funding for NASA earth science.

¶10. Several U.S. experts concentrated more on the glaciers in South America, e.g. Mathias Viulle from the State University of New York-Albany talked about climate change and glaciers in South America's arid zone, and Bryan Mark from Ohio State University evaluated hydrological changes from climate change and tropical Andean glacier recession. Some U.S. researchers highlighted projects by displaying a poster, e.g. Joan Ramage from Lehigh University showed her group's analysis of variations in Equilibrium Line Altitudes (ELAs) on remote Peruvian glaciers. Ramage also explained the work of Michael Willis from Cornell University, who was not present, but displayed a poster on his work entitled "Remote Sensing of Velocities and Elevation Change at Outlet Glaciers of the Northern Patagonian Icefield, Chile."

Chile Developing a National Plan for Glacier Monitoring and Climate Impacts

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¶11. Andres Rivera, a prominent glacier researcher at CECS, gave a presentation titled "A Nationwide Strategic Plan for Improving Current Knowledge of Chilean Glaciers and Modeling Glacier Impacts on Climate Change." According to Rivera, DGA commissioned CECS to prepare this as a policy paper/roadmap for the GOC to improve the country's understanding of its glacier resources, including "a diagnosis of recent changes, an evaluation of the current capability for scientific and technological glacier research in Chile and a [proposal] for a systematic monitoring/observation system for future data collection, enabling modeling and forecasting of glacier response to future climatic scenarios."

¶12. In addition to outlining Chile's attempts to legally define a glacier, Rivera proposed a 5-tiered approach to prioritize the depth/detail to which the country's over 3,700 glaciers should be inventoried, monitored, and studied. He noted that CECS has started a pilot project on University Glacier and later told ESTHoff that CECS has three stations (about $20,000 in instrumentation at each) on this glacier, two on the ice and one in the runoff area. He also said Chile recently acquired a $90,000 forward looking infrared camera, but expressed concerns about the best platform to exploit this new equipment and noted that both training/logistical support are needed. Rivera emphasized to ESTHoff that training for students and technology transfer are areas where Chile could use greater assistance.

Comment: The Glaciers are Shrinking and Chile Needs More Glaciologists!

¶13. One general conclusion from the conference was that the rate of glacier recession appears to have increased in recent years and preserving the ice record contained in this disappearing resource is important to understand long-term climate variations. Chile is

putting a huge amount of effort into developing its national glacier strategy, but it is evident that there are major gaps in human resources, funding, and technology. The U.S.-Chile Environmental Cooperation Work Plan for 2009-2011 (septel) has identified the development of a pilot glacier-monitoring project in Chile as a priority. Post notes that USG agencies could both provide a real benefit and possibly derive benefits from increased collaboration on cryospheric monitoring and analysis.
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